

**UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF NORTH CAROLINA**

**SHOALS TECHNOLOGIES
GROUP, LLC**

Plaintiff,

v.

**VOLTAGE, LLC and NINGBO
VOLTAGE SMART PRODUCTION
CO.,**

Defendants.

Civil Action No. 1:25-cv-00026

DEMAND FOR JURY TRIAL

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Shoals Technologies Group, LLC (“Shoals”) hereby makes this Complaint against Voltage, LLC (“Voltage”) and Ningbo Voltage Smart Production Co. (“Ningbo Voltage”) (collectively the “Voltage Defendants”) as follows:

I. NATURE OF ACTION

1. This is a patent infringement action. Shoals seeks an injunction, damages and other relief for the Voltage Defendants’ infringement of Shoals’ United States patents relating to innovative connectors for solar panel installations.

II. PARTIES

2. Shoals is a limited liability company duly organized and existing under the laws of Tennessee with its principal place of business located at 1400 Shoals Way, Portland, Tennessee 37148.

3. Shoals is the owner by assignment of U.S. Patent No. 12,015,375 (“375 Patent”) and U.S. Patent No. 12,015,376 (“376 Patent”) (collectively, the “Asserted Patents”).

4. On information and belief, Voltage is a limited liability company incorporated under the laws of North Carolina. Its headquarters and principal place of business is located at 1450 Raleigh Road, Chapel Hill, North Carolina 27517.

5. On information and belief, Ningbo Voltage is a company organized and existing under the laws of the People’s Republic of China. Ningbo Voltage manufactures and exports to the United States products that infringe the Asserted Patents. Ningbo Voltage’s principal place of business is located at No. 201 Bldg. 5 (14) Miaofengshan Rd., Beilun District, Ningbo, China.

III. JURISDICTION AND VENUE

6. This action arises under the U.S. Patent Act, codified at 35 U.S.C. § 1 *et seq.*, and in particular, but not limited to, 35 U.S.C. §§ 271, 281, 283, 284 and 285.

7. This Court has original jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a) because the claims arise under the patent laws of the United States.

8. This Court has personal jurisdiction over Defendants in that Defendants have, directly or through agents and/or intermediaries, committed acts within this

District giving rise to this action and/or have established minimum contacts with this forum such that the exercise of jurisdiction over Defendants would not offend traditional notions of fair play and justice.

9. On information and belief, Defendants regularly conduct business in this District and purposefully avail themselves of the privileges of conducting business in North Carolina and this District. In particular, on information and belief, Defendants, directly and/or through their agents and/or intermediaries, make, use, import, offer for sale, sell, and/or advertise their products in North Carolina, including in this District. Defendants have placed, and continue to place, infringing products into the stream of commerce via an established distribution channel, with the knowledge and/or understanding that such products are sold in the United States and specifically in North Carolina, including in this District.

10. On information and belief, Defendants have derived substantial revenue from their infringing activity occurring within the State of North Carolina and this District and/or should reasonably expect their actions to have consequences in this District. In addition, Defendants have, and continue to, knowingly induce infringement within this district by advertising, marketing, offering for sale and/or selling infringing products within this District and by providing instructions, user manuals, advertising and/or marketing materials which facilitate, direct, or encourage infringing activity with the knowledge thereof.

11. Defendants have committed patent infringement in North Carolina, including this District, that has led to foreseeable harm and injury to Shoals.

12. Additionally, this Court has personal jurisdiction over Voltage in this action because it is a North Carolina corporation domiciled in the State of North Carolina.

13. On information and belief, this Court has personal jurisdiction over Ningbo Voltage because it has availed itself of the rights and benefits of the laws of the State of North Carolina, the claims in this Complaint arise out of or relate to Ningbo Voltage's activities within and/or directed to the State of North Carolina, and it has systematic and continuous business contacts with the State of North Carolina. Specifically, Ningbo Voltage is an affiliate of Voltage, which is domiciled in this forum, and regularly manufactures and exports products that infringe the Asserted Patents to this forum. Ningbo Voltage has purposefully and voluntarily placed the Accused Products into the stream of commerce with the intention and expectation that they will be purchased and used by consumers, including in the Middle District of North Carolina

14. Ningbo Voltage is also subject to jurisdiction in the United States and specifically in North Carolina, pursuant to Fed. R. Civ. P. 4(k)(2). Ningbo Voltage has contacts within the United States that include, *inter alia*, advertising, selling,

offering to sell, and/or importing its products throughout the United States, including within the State of North Carolina and this District.

15. Venue is proper in this Court under 28 U.S.C. §§ 1391 and 1400(b). Voltage resides in this District as it maintains physical offices with employees in this District and is registered to do business in North Carolina. Voltage and Ningbo Voltage have also transacted business in this District and have committed acts of infringement in this District by, among other things, making, using, offering to sell, selling, and/or importing products that infringe the Asserted Patents. Ningbo Voltage is a Chinese company and thus venue is proper in any judicial district in the United States.

IV. FACTUAL BACKGROUND

16. In 1996, in Muscle Shoals, Alabama, Dean Solon – the inventor of the Asserted Patents – founded what is now Shoals Technologies Group, LLC. Shoals is a pioneer in electrical balance of systems (“EBOS”) solutions for solar energy projects – the wiring infrastructure between modules that generate DC power from sunlight and the inverters that transform it into AC power to be fed into the “grid.” All of Shoals’ products are manufactured domestically and Shoals primarily sells its products to engineering, procurement, and construction firms (“ECPs”) that build solar energy projects in the United States. Through Shoals’ innovative EBOS solutions, the power of solar energy can be harnessed efficiently, making

construction of solar fields faster, easier and less expensive; allowing for cleaner air; and contributing to healthier communities. Pivotal to Shoals' EBOS solutions is its award-winning Big Lead Assembly (BLA), manufactured in facilities located in Tennessee, which Shoals has been selling since at least 2016.

17. Shoals is built on a foundation of American ingenuity, with manufacturing facilities in Portland, Tennessee, and Muscle Shoals, Alabama. In 2008, Shoals acquired its first facility in Tennessee. In 2012 Shoals acquired a second plant in Tennessee and in 2022 opened a third plant in Tennessee. In February 2024, Shoals announced plans to invest in a new "Mega" plant, also located in Portland, Tennessee. Since its founding, Shoals has had an unwavering commitment to quality, reliability, and safety in the products it develops and delivers for its customers. As a tier-1 supplier to the solar and energy storage sectors, Shoals' commitment to sustainability and responsible business practices is foundational to the company.

18. Shoals is a leading provider of EBOS solutions for solar energy projects in the United States. EBOS encompasses all of the components that are necessary to carry the electric current produced by solar panels to an inverter and ultimately to the power grid. EBOS components are mission-critical products. Substantially all of Shoals' 2024 revenue was derived from its U.S. customers, and historically a majority of its revenue is derived from customers in the U.S.

19. Shoals is a technological leader in the field of EBOS solutions and one of the industry's top innovators. Shoals maintains its position as one of the top innovators in the industry by making substantial investments in the research, development, and acquisition of cutting-edge technologies. Shoals is constantly innovating to find new ways to make EBOS safer and more reliable, while also less expensive and easier to install and maintain. Shoals' innovations, including in particular the inventions claimed in the Asserted Patents, also increase efficiency by reducing energy loss in solar installations. Many of Shoals' technological innovations, products, and concepts are protected by Shoals' valuable intellectual-property portfolio, which includes more than 20 issued United States patents and many pending patent applications. Shoals' BLA, which is protected by the Asserted Patents, won first prize in the Balance of Systems category in PV Magazine's 2019 awards.

20. The '375 Patent and '376 Patent are in the same family and are generally directed to improved lead assemblies or solar wire harness systems for connecting components in solar energy systems and solar panel arrays. Assemblies and systems that embody the patented inventions offer significant savings to the developer of a solar installation because they reduce or eliminate the need for combiner boxes, reduce the amount of wire and other materials needed, and substantially reduce the labor costs for installation. The claimed lead assemblies are

less expensive to manufacture and transport than the prior art alternatives, are easy to use, and permit a more simplified component configuration in the solar field.

21. Exemplary embodiments of lead assemblies from the Asserted Patents are illustrated below.

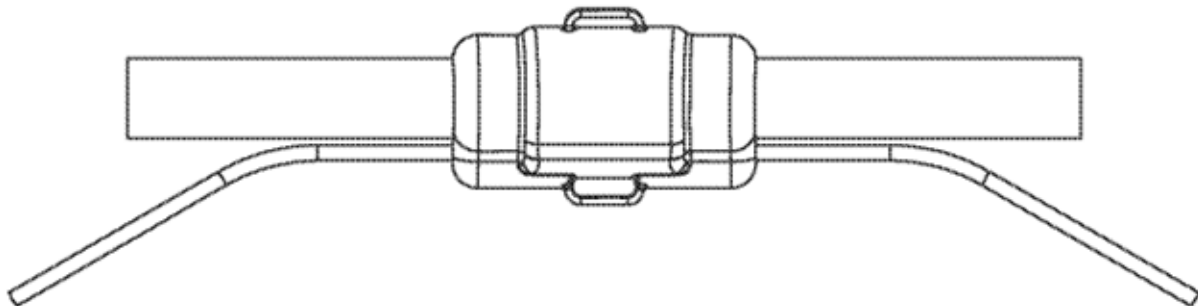


FIG. 31

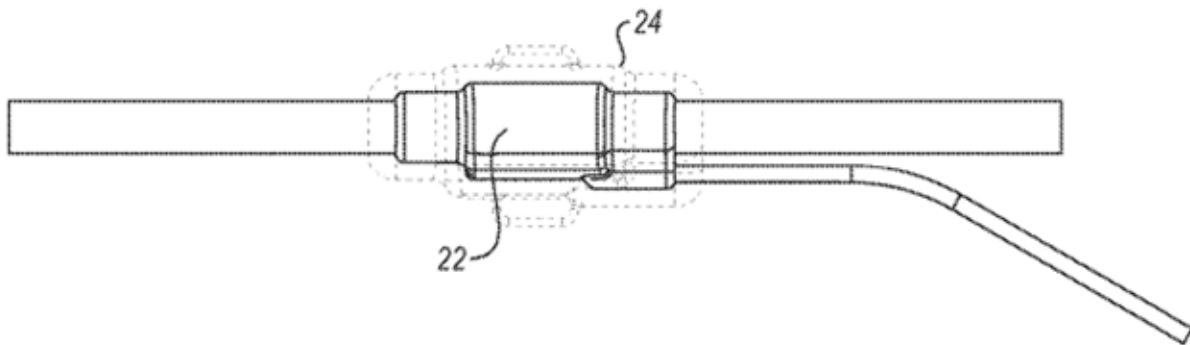


FIG. 48

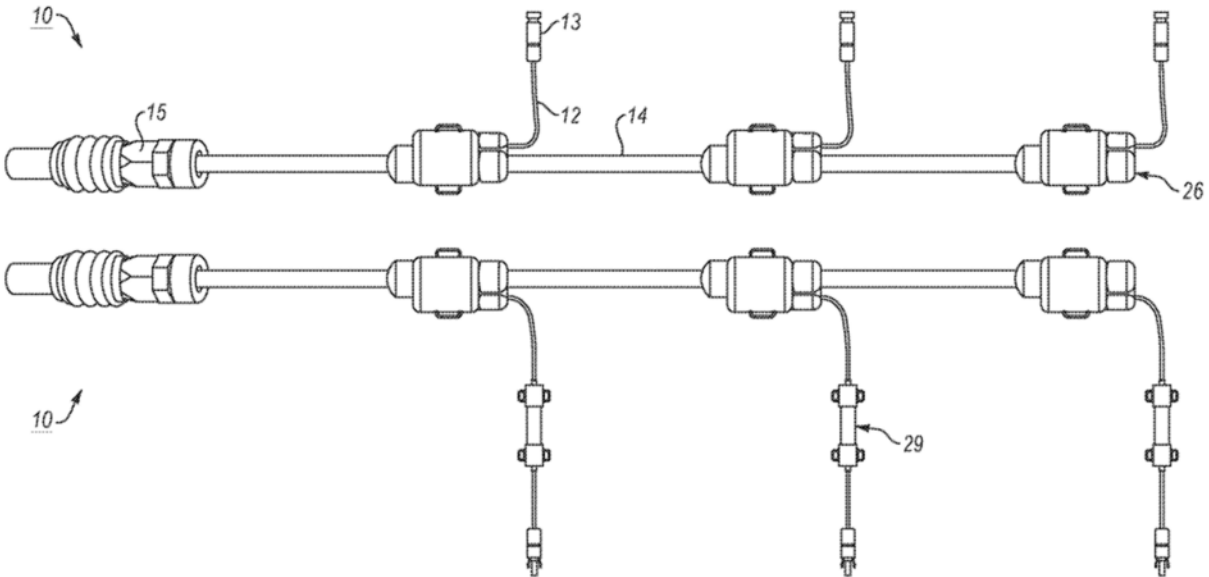


FIG. 27

22. The Asserted Patents generally relate to a lead assembly that includes one or more drop lines electrically coupled to a feeder cable at a nexus. The coupling may be secured by a compression lug, soldering, splicing, crimping, or combinations thereof. The nexus may be surrounded by a mold structure that surrounds, seals, and fully encases the nexus, resulting in a profoundly durable assembly resistant to environmental factors. In use, each drop line may be connected to a solar panel or array, and the feeder cable may be attached to an inverter. In this manner, a plurality of solar arrays may be electrically coupled together, with a common feeder cable connecting them all to the inverter. Shoals' patented improvements eliminate the need for combiner boxes which are conventionally employed directly upstream of

an inverter, significantly reduce the amount of wire needed for a solar installation, and streamline the installation process for solar panel arrays. The improvements of the '375 Patent and '376 Patent provide for a system that is safer, more reliable, less expensive, more efficient to install, and easier to maintain.

23. Shoals' products that employ the technology protected by the Asserted Patents include, but are not limited to, Shoals' Big Lead Assembly ("BLA") and mini-BLA.

A. The Asserted Patents

a. The '375 Patent

24. On June 18, 2024, the United States Patent and Trademark Office duly and lawfully issued the '375 Patent, entitled "Lead Assembly for Connecting Solar Panel Arrays to Inverter," to inventor Dean Solon. The '375 Patent issued from United States Application No. 18/341,655, filed on June 26, 2023, and is a continuation of U.S. Patent Application No. 17/301,609, filed Apr. 8, 2021, now U.S. Patent No. 11,689,153, which is a continuation of U.S. Application No. 14/849,458, filed on Sept. 9, 2015, now U.S. Patent No. 10,992,254. The '375 Patent claims priority to U.S. Provisional Patent Application No. 62/047,773, filed on September 9, 2014. The '375 Patent expires on September 9, 2035. A true and correct copy of the '375 Patent is attached hereto as **Exhibit 1**.

25. Shoals is the assignee of all rights, title, interest in and to the '375 Patent with full rights to enforce the '375 Patent and to sue to recover for past, present, and future damages.

b. The '376 Patent

26. On June 18, 2024, the United States Patent and Trademark Office duly and lawfully issued the '376 Patent, entitled "Lead Assembly for Connecting Solar Panel Arrays to Inverter," to inventor Dean Solon. The '376 Patent issued from United States Application No. 18/523,464, filed on November 29, 2023, and is a continuation of U.S. Patent Application No. 18/341,655, filed on June 26, 2023, now U.S. Patent No. 12,015,375, which is a continuation of U.S. Patent Application No. 17/301,609, filed Apr. 8, 2021, now U.S. Patent No. 11,689,153, which is a continuation of U.S. Application No. 14/849,458, filed on Sept. 9, 2015, now U.S. Patent No. 10,992,254. The '376 Patent claims priority to U.S. Provisional Patent Application No. 62/047,773, filed on September 9, 2014. The '376 Patent expires on September 9, 2035. A true and correct copy of the '376 Patent is attached hereto as **Exhibit 2.**

27. Shoals is the assignee of all rights, title, interest in and to the '376 Patent with full rights to enforce the '376 Patent and to sue to recover for past, present, and future damages.

B. The Voltage Defendants' Infringing Activities and Products

28. On information and belief, the Voltage Defendants have been and are now directly and/or indirectly infringing, literally and/or under the doctrine of equivalents, the Asserted Patents by making, using, selling and/or offering for sale in the United States, and/or importing into the United States, products covered by one or more of the claims of the Asserted Patents, including, but not limited to the Voltage LYNX Trunk Bus and what Voltage has publicly referred to as their “alternative LYNX design” (the “Accused Products” or the “Voltage LYNX Trunk Bus”).¹

29. Voltage’s website identifies projects for which it delivered “solutions” in Kern County, California, Pueblo County, Colorado, Maricopa County, Arizona, Dickens County, Texas, Point Coupee Parish, Louisiana, Okeechobee County, Florida, and Decatur County, Georgia. Voltage’s website further boasts its “Nationwide Distribution” and that it has “21GW of solar wiring solutions delivered and in the current pipeline nationwide.”

30. On information and belief, the Accused Products are manufactured by and/or on behalf of Voltage in China, including at its affiliate Ningbo Voltage.

31. Defendants’ products, including at least the Accused Products, infringe one or more claims of the Asserted Patents.

¹ Shoals reserves the right to identify additional categories of products if it learns of such products through discovery or other means.

32. Images of portions of the Voltage LYNX Trunk Bus products from Defendants' website are depicted below, and their infringing nature is further detailed below.



Figure 1. Voltage LYNX Trunk Bus Lead Assembly

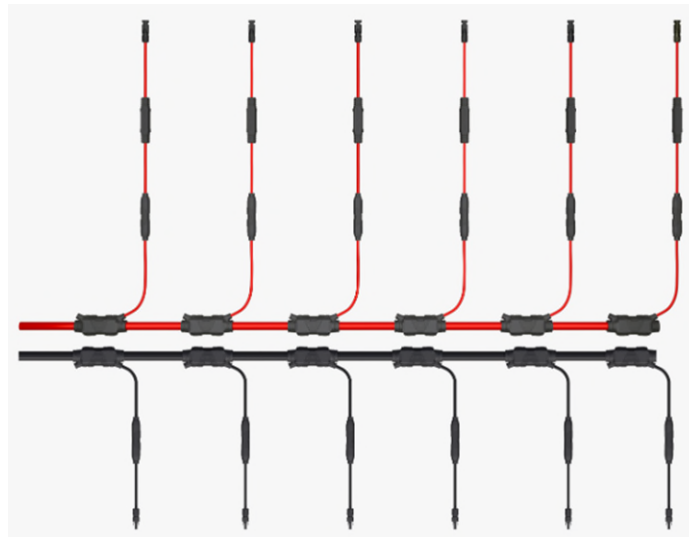


Figure 2. Voltage LYNX Trunk Bus Exemplary Configuration

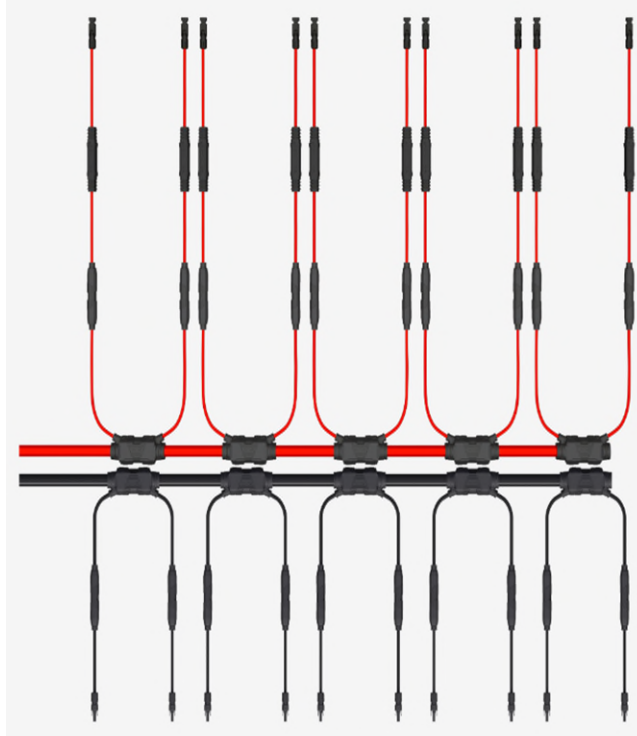


Figure 3. Voltage LYNX Trunk Bus Exemplary Configuration

33. Shoals has lost sales of its competing products due to Defendants' infringement of the Asserted Patents.

34. On information and belief, Defendants have had actual knowledge of the Asserted Patents since prior to the filing of this Complaint, at minimum, as a result of Voltage's investigation and monitoring of Shoals patents, including family members of the Asserted Patents, issued by the United States Patent and Trademark Office. For example, Voltage cited family members to the Asserted Patents in an Information Disclosure Statement filed at the U.S. Patent and Trademark Office.

35. On information and belief, the Voltage Defendants have been on notice of their infringement of the '375 and '376 Patents since at least the dates the Asserted Patents issued.

36. Shoals has satisfied the statutory requirement to mark its products in accordance with 35 U.S.C. § 287.

V. FIRST CLAIM FOR RELIEF

(Infringement of U.S. Patent No. 12,015,375)

37. Shoals incorporates by reference the allegations contained in the foregoing paragraphs.

A. Direct Infringement

38. Defendants infringe, and have infringed, one or more claims of the '375 Patent directly, either literally or under the doctrine of equivalents, by making, using, selling, offering for sale and/or importing into the United States, without authority, the Accused Products. Voltage, individually and collectively as a common enterprise, develops, designs, manufactures, sells, and distributes the Accused Products. The Accused Products meet each and every element of one or more of the claims of the '375 Patent. Further, Defendants use the infringing products and practice the methods that infringe one or more claims of the '375 Patent, and do so in the United States. Defendants are thus liable for direct infringement pursuant to 35 U.S.C. § 271(a).

39. By way of illustration only, Defendants' LYNX Trunk Bus products meet each and every element of at least claim 1 of the '375 Patent. For example, as shown in the claim chart attached hereto as **Exhibit 3** and fully incorporated herein, the Accused Products practice all elements of at least claim 1 of the '375 Patent either literally or under the Doctrine of Equivalents.

B. Indirect, Induced, and Contributory Infringement

40. On information and belief, the Voltage Defendants have been and are now actively infringing the '375 Patent, literally or under the doctrine of equivalents, in violation of at least 35 U.S.C. § 271(b) by actively and knowingly inducing others to make, use, sell, offer for sale, or import into the United States products, such as the Voltage LYNX Trunk Bus, that incorporate a lead assembly for use in solar energy installations that infringe one or more claims of the '375 Patent, including at least claim 1.

41. On information and belief, Defendants induced, with specific intent, infringement of the '375 Patent by, *e.g.*, encouraging and facilitating infringing uses of the Accused Products through the creation and dissemination of promotional and marketing materials, instructional materials, product manuals, and/or technical materials to third parties, such as their customers, subsidiaries and affiliates, distributors, testers, trainers, customers, and/or end users, to directly infringe the '375 Patent. Defendants induced, with specific intent, infringement of the '375

Patent by instructing its own agents and/or other Defendants to, *e.g.*, use, import, sell, and/or offer for sale the Accused Products. Defendants took these actions with the specific intent to induce acts constituting infringement, and knowing that the induced acts constitute patent infringement, either literally or under the doctrine of equivalents.

42. On information and belief, Defendants have actively been contributing and are now knowingly contributing to direct infringement by their customers, third parties, and one another, by having imported, sold, and/or offered for sale, and knowingly importing, selling, and/or offering to sell within the United States the Accused Products, with knowledge that the infringing technology of the Accused Products is especially made and/or especially adapted for use in infringement of the '375 Patent. Each Defendant has contributed to the infringement by others with knowledge that the infringing technology in the Accused Products is a material part of the patented invention, with knowledge that the infringing technology is not a staple article of commerce suitable for substantial non-infringing use, and with knowledge that others do not have any substantial non-infringing uses therefor. Defendants have such knowledge at least because the claimed features of the '375 Patent are used by Voltage and third parties within the United States.

C. Willful Infringement

43. On information and belief, Defendants knew or should have known of the '375 Patent and have acted, and continue to act, in an egregious and wanton manner by infringing the '375 Patent. On information and belief, Defendants' infringement of the '375 Patent has been and continues to be willful and deliberate.

44. On information and belief, despite knowing that their actions constituted infringement of the '375 Patent and/or despite knowing that there was a high likelihood that their actions constituted infringement of the patent, Defendants nevertheless continued their infringing actions.

45. Defendants' acts of infringement have injured and damaged Shoals. Defendants' wrongful conduct has caused Shoals to suffer irreparable harm resulting from the loss of its lawful patent rights to exclude others from making, using, selling, offering to sell, and importing the patented inventions. Upon information and belief, Defendants will continue these infringing acts unless enjoined by this Court.

46. Shoals is entitled to damages adequate to compensate it for the infringement but in no event less than a reasonable royalty.

VI. SECOND CLAIM FOR RELIEF

(Infringement of U.S. Patent No. 12,015,376)

47. Shoals incorporates by reference the allegations contained in the foregoing paragraphs.

A. Direct Infringement

48. Defendants infringe, and have infringed, one or more claims of the '376 Patent directly, either literally or under the doctrine of equivalents, by making, using, selling, offering for sale and/or importing into the United States, without authority, the Accused Products. Voltage, individually and collectively as a common enterprise, develops, designs, manufactures, sells, and distributes the Accused Products. The Accused Products meet each and every element of one or more of the claims of the '376 Patent. Further, Defendants use the infringing products and practice the methods that infringe one or more claims of the '376 Patent, and do so in the United States. Defendants are thus liable for direct infringement pursuant to 35 U.S.C. § 271(a).

49. By way of illustration only, Defendants' LYNX Trunk Bus products meet each and every element of at least claim 1 of the '376 Patent. For example, as shown in the claim chart attached hereto as **Exhibit 4** and fully incorporated herein, the Accused Products practice all elements of at least claim 1 of the '376 Patent either literally or under the Doctrine of Equivalents.

B. Indirect, Induced, and Contributory Infringement

50. On information and belief, the Voltage Defendants have been and are now actively infringing the '376 Patent, literally or under the doctrine of equivalents, in violation of at least 35 U.S.C. § 271(b) by actively and knowingly inducing others to make, use, sell, offer for sale, or import into the United States products, such as

the Voltage LYNX Trunk Bus, that incorporate a lead assembly for use in solar energy installations that infringe one or more claims of the '376 Patent, including at least claim 1.

51. On information and belief, Defendants induced, with specific intent, infringement of the '376 Patent by, *e.g.*, encouraging and facilitating infringing uses of the Accused Products through the creation and dissemination of promotional and marketing materials, instructional materials, product manuals, and/or technical materials to third parties, such as their customers, subsidiaries and affiliates, distributors, testers, trainers, customers, and/or end users, to directly infringe the '376 Patent. Defendants induced, with specific intent, infringement of the '376 Patent by instructing its own agents and/or other Defendants to, *e.g.*, use, import, sell, and/or offer for sale the Accused Products. Defendants took these actions with the specific intent to induce acts constituting infringement, and knowing that the induced acts constitute patent infringement, either literally or under the doctrine of equivalents.

52. On information and belief, Defendants have actively been contributing and are now knowingly contributing to direct infringement by their customers, third parties, and one another, by having imported, sold, and/or offered for sale, and knowingly importing, selling, and/or offering to sell within the United States the Accused Products, with knowledge that the infringing technology of the Accused

Products is especially made and/or especially adapted for use in infringement of the '376 Patent. Each Defendant has contributed to the infringement by others with knowledge that the infringing technology in the Accused Products is a material part of the patented invention, with knowledge that the infringing technology is not a staple article of commerce suitable for substantial non-infringing use, and with knowledge that others do not have any substantial non-infringing uses therefor. Defendants have such knowledge at least because the claimed features of the '376 Patent are used by Voltage and third parties within the United States.

C. Willful Infringement

53. On information and belief, Defendants knew or should have known of the '376 Patent and have acted, and continue to act, in an egregious and wanton manner by infringing the '376 Patent. On information and belief, Defendants' infringement of the '376 Patent has been and continues to be willful and deliberate.

54. On information and belief, despite knowing that their actions constituted infringement of the '376 Patent and/or despite knowing that there was a high likelihood that their actions constituted infringement of the patent, Defendants nevertheless continued their infringing actions.

55. Defendants' acts of infringement have injured and damaged Shoals. Defendants' wrongful conduct has caused Shoals to suffer irreparable harm resulting from the loss of its lawful patent rights to exclude others from making, using, selling,

offering to sell, and importing the patented inventions. Upon information and belief, Defendants will continue these infringing acts unless enjoined by this Court.

56. Shoals is entitled to damages adequate to compensate it for the infringement but in no event less than a reasonable royalty.

VII. JURY DEMAND

Pursuant to Federal Rule of Civil Procedure 38(b), Shoals hereby demands a trial by jury on all issues and claims so triable.

VIII. PRAYER FOR RELIEF

WHEREFORE, Shoals respectfully prays for the following relief:

1. A judgment that Voltage has infringed each of the patents-in-suit.
2. A judgment that each of the Asserted Patents is valid and enforceable.
3. A finding that Defendants' infringement of the Asserted Patents was willful.
4. A finding that this is an exceptional case pursuant to 35 U.S.C. § 285.
5. A permanent injunction prohibiting Voltage and Voltage Ningbo, and their officers, agents, representatives, assigns, licensees, distributors, employees, related entities, and all those acting in privity or acting in concert with them, from infringing, inducing, or contributing to the infringement of the Asserted Patents.

6. Awarding Plaintiff damages pursuant to 35 U.S.C. § 284 adequate to compensate for Defendants' infringement of the Asserted Patents, including past infringement, said damages to be no less than a reasonable royalty.
7. A judgment that Defendants' infringement was willful and trebling damages pursuant to 35 U.S.C. § 284.
8. An award to Shoals of pre-judgment and post-judgment interest.
9. An award to Shoals of its costs, expenses, and reasonable attorneys' fees under 35 U.S.C. § 285 and all other applicable statutes, rules, and common law, including this Court's inherent authority. And
10. An order awarding such other and further relief as the Court may deem just and proper.

January 9, 2025

Respectfully submitted,

/s/ Jason D. Evans

Jason D. Evans, N.C. Bar No. 27808
Jason.Evans@troutman.com
TROUTMAN PEPPER LOCKE LLP
301 S. College St. 33rd Floor
Charlotte, N.C.28202
Tel: 704.916.1502

William Belanger (*Notice of Special
Appearance to be Filed*)
William.Belanger@Troutman.com
TROUTMAN PEPPER LOCKE LLP
125 High Street, 19th Floor High Street
Tower Boston, Massachusetts 02110-
2736
Tel: 617.204.5100

Kimberly E. Coghill (*Notice of Special
Appearance to be Filed*)
Kimberly.Coghill@Troutman.com
Jacob Nagy (*Notice of Special
Appearance to be Filed*)
Jacob.Nagy@troutman.com
TROUTMAN PEPPER LOCKE LLP
401 9th Street, N. W.
Suite 1000
Washington, D.C. 20004
Tel: 202.220.1200

***Counsel for Plaintiff Shoals
Technologies, LLC***